

WHAT IS CLAIMED IS:

1                   1.     Apparatus for generating multiple streams of video and/or audio  
2 data comprising:  
3                   a large scale memory device;  
4                   means for storing said data in said large scale memory device; and  
5                   means for retrieving at least a portion of said data from said large scale  
6 memory device and generating multiple asynchronous streams of data, said retrieving  
7 means including:  
8                   (a)     at least two stream server processors operatively  
9 connected to said large scale memory device;  
10                  (b)     an interconnect allowing near simultaneous access to said  
11 data stored in said large scale memory device by said at least two stream server  
12 processors,  
13                  (c)     said interconnect including a hardware based arbitrator  
14 operatively connected to said at least two stream server processors for controlling  
15 access to said large scale memory device so that said multiple unique streams of data  
16 may be generated by one or more of said at least two stream server processors from  
17 said large scale memory device; and  
18                  (d)     means for generating protocols necessary for the transport  
19 of each unique stream across at least one network and for decoding said unique  
20 streams of data.

1                   2.     The apparatus of claim 1, wherein the data stored and retrieved  
2     from said large scale memory device includes audio with a predetermined relationship  
3     to said video.

4                   3.     The apparatus of claim 1, wherein said large scale memory  
5     device is comprised of random access memory.

6  
7                   4.     The apparatus of claim 3, wherein said large scale memory  
8     device has a storage capacity of at least 65 gigabytes.

9  
10                  5.     The apparatus of claim 3, wherein said large scale memory  
11     device has an address bus greater than 36 bits.

12  
13                  6.     The apparatus of claim 3, wherein said audio and/or video data  
14     includes multiple unique programs.

15  
16                  7.     The apparatus of claim 6, wherein said multiple streams of  
17     asynchronous streams of data are simultaneously generated from said multiple unique  
18     programs.

19  
20                  8.     The apparatus of claim 7, including means for allowing said  
21     stream(s) to be generated upon a first block of an audio/video program being stored in

1 said large scale memory, without having to wait for entire said program to be written  
2 to said large scale memory.  
3

4 9. The apparatus of claim 3, including a module CPU for each of  
5 said at least two stream server processors, each of said module CPUs using a first bus  
6 that is separate from a second bus from which said data streams are retrieved.  
7

8 10. The apparatus of claim 1, wherein said large scale memory  
9 device is composed of dual inline memory modules.  
10

11 11. The apparatus of claim 1, wherein said large scale memory  
12 device is composed of DRAM.  
13

14 12. The apparatus of claim 1, wherein said large scale memory  
15 device is composed of magnetic RAM.  
16

17 13. The apparatus of claim 1, wherein said large scale memory  
18 device is composed of dual data rate RAM.  
19

20 14. The apparatus of claim 1, wherein said large scale memory  
21 device is composed static RAM.  
22

1           15.    The apparatus of claim 1, wherein said large scale memory  
2 device is composed synchronous DRAM.

3  
4           16.    The apparatus of claim 1, wherein the protocol associated with  
5 said streams of data is generated in hardware.

6  
7           17.    The apparatus of claim 1, wherein said stream server processors  
8 are interconnected and shared across a backplane.

9  
10          18.    The apparatus of claim 1, wherein said retrieving and generating  
11 means includes means for responding to VCR type controls, said controls being  
12 handled by a separate CPU running software.

13  
14          19.    A method for generating multiple asynchronous streams of video  
15 and/or audio data, including the steps of:

16                   (a)    generating one or more video and/or audio program  
17 streams,

18                   (b)    transferring said program stream(s) to a large scale  
19 memory device,

20                   (c)    storing at least a portion of said program stream(s) in said  
21 memory device,

1 (d) establishing sessions in response to a request from one or  
2 more customer terminals to generate one or more program stream(s), said request  
3 being handled by a CPU that uses a first bus separate from a second over which  
4 program streams are transferred to said customer terminal, and

5 (e) using a separate hardware based processor for retrieving  
6 and generating one or more program streams for said customer terminal from one or  
7 more program streams stored in said large scale memory.

8  
9 20. The method of claim 19, wherein said large scale memory device  
10 is comprised of random access memory.

11  
12 21. The method of claim 19, further comprising the step of  
13 generating multiple program streams using multiple hardware based processors that  
14 simultaneously access said large scale memory device.

15  
16 22. The method of claim 19, further comprising the step of  
17 generating a protocol stack associated with each of said data streams in said hardware  
18 based processor.